Aren Guralp

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EDUCATION

Brown University — Providence, RI
Bachelor of Sciences in Mathematics-Computer Science — *Aug. 2023 – May 2027*

Near East College — Nicosia, Cyprus
High School Diploma — *Aug. 2019 – May 2023*

MATHEMATICAL EXPERIENCE

Mathematics Formalization Research — June 2024 – Present
Brown University — *Providence, RI*

- Gain proficiency in Lean and the use of the Mathlib library, an open-source software project.
- Research online for past mathematical research on properties of the Fibonacci sequence.
- Produce novel formalized proofs of category-theoretic and number-theoretic theorems about the Fibonacci and related sequences.

Directed Reading Project, Computational Algebraic Geometry — June 2024 – August 2024
Brown University — *Providence, RI*

- Studied deeply *Ideals, Varieties, Algorithms* under the guidance of graduate student mentor.
- Completed chosen exercises and discussed with reading partner, presenting solutions and critiquing each other's.
- Gave 15-minute talk on the topic of Gröbner Bases and Elimination Theory.

Math Circle Helper — Oct. 2023 – May 2024
Brown University, Achievement First High-school — *Providence, RI*

- Facilitate the engagement of high-school students from underserved backgrounds with mathematics.
- Work in teams to guide students through mathematical games and activities.
- Prompt students to explain their reasoning, engaging their critical thinking and communication skills.

Hampshire College Summer Studies in Mathematics — June 2022 – Aug. 2022
Hampshire College — *Amherst, MA*

- Engaged in College-level mathematics in a collaborative inquiry-based learning format.
- Gained experience formulating conjectures, proving them, and presenting my proofs.
- Wrote several Program Journal articles, including a summary of my Combinatorics class, making use of LaTeX.

EXTRACURRICULAR INVOLVEMENT

Mathematics DUG | *Co-President* — August 2024 – Present

- Plan and organize informational and community-building events for concentrators and non-concentrators.
- Serve as peer advisor to concentrators, prospective concentrators, and other undergraduate students

Brown New Student Orientation 2024 | *Orientation Puzzle Hunt Director* — May 2024 – August 2024

- Conceptualize, present, and direct the organization of a Puzzle Hunt to be run during Orientation.
- Coordinate puzzle writing, test solving, answer submission, and hint answering.

Brown Puzzlehunt 2024 | *Story Director, Puzzle Writer* — Sep. 2023 – April 2024

- Coordinated team of writers in developing story and lore interactions for BPH.
- Write logic and critical thinking puzzles to be solved during the Hunt.
- Direct several in-person events and answer hint requests during the Hunt.

RELEVANT COURSEWORK

Fall 2023: Multivariable Calculus with Theory (A), Accelerated Introduction to Computer Science (A)
Spring 2024: Linear Algebra with Theory (A), Abstract Algebra (A), Cryptography (A), Modal Logic (A), Homotopy Type Theory (independent study).
Fall 2024 (Planned): Topics in Abstract Algebra, Real Analysis I, Differential Geometry, Design and Analysis of Algorithms, Statistical Inference I